

ICE CLIPPER -- A LOW-COST EUROPA SAMPLE RETURN MISSION\*, Henry Harris, Jet Propulsion Laboratory, California Institute of Technology

Voyager and Galileo images of Europa suggest tantalizing possibilities that make it a strong candidate for robotic missions, providing for closer examination and analysis of the surface. Unfortunately, at the five AU distance of Europa, propulsion requirements, lower efficiency of solar power and the high radiation environment make the cost of mounting a lander expedition, or even an orbiter, formidable, especially under current NASA budget constraints. Presented is a discussion of a new idea for a Europa sample return mission that is currently being developed at JPL as a Discovery proposal to NASA. Ejecta samples will be taken in a flyby of Europa, captured in aerogel and returned via a near free-return trajectory to direct reentry and parachute landing on Earth. Ejecta particles of the Europa surface will be created by striking the surface with a 10 Kg impactor prior to a 50 Km flyby. A mass spectrometer will analyze ejecta during the flyby as well as the atmosphere of Europa. A camera will provide images of the impact plume as well as close-up images of the selected flyby region. Science, navigation requirements, ejecta modeling and mission scenario will be discussed.

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